FORM PTO-1390 (REV 11-98) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: 39252

US APPLICATION NO (If known, see 37 CFR 1.5): 09/446523

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/EP97/04630	25 August 1997	

TITLE OF INVENTION: FILTER ELEMENT WITH PLASTIC FILTER CASING

APPLICANT(S) FOR DO/EO/US: Gerd Altmeyer, Harald Mees, Herbert Mohr and Ute Lehmann

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☑ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☑ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☑ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☑ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☑ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☑ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☑ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☑ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☑ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☑ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☑ A FIRST preliminary amendment.
    ☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☑ Other items or information:

    Certificate about change of name of inventor Zenner to Lehmann

US APPLICATION NO (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO	ATTORNEY'S DOCKET NUMBER
09/446523	PCT/EP97/04630	39252

17. ☐ The following fees are submitted:	CALCULATIONS PTO USE ONLY
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :	
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$970.00**	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$840.00**	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **$760.00**	
International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$670.00**	
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) **$96.00**	
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 840.00
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$ 0

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	7 - 20 =	0	X **$18.00**	$ 0
Independent claims	1 - 3 =	0	X **$78.00**	$ 0
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$260.00**	$
TOTAL OF ABOVE CALCULATIONS =				$
Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also by filed (Note 37 CFR 1.9, 1.27, 1.28).				$ 840.00
SUBTOTAL =				$ 840.00
Processing fee of **$130.00** for furnishing the English translation later than ☐20 ☐30 months from the earliest claimed priority date (37 CFR 1.492(f)). +				$ 0
TOTAL NATIONAL FEE =				$ 840.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$ 40.00
TOTAL FEES ENCLOSED =				$ 880.00
			Amount to be: refunded	$
			charged	$

a. ☑ A check in the amount of $ 880.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of $_____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☑ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 18-2220. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Mark S. Bicks
Roylance, Abrams, Berdo &
Goodman, L.L.P.
1225 Connecticut Ave, N.W.
Suite 315
Washington, D.C. 20036

SIGNATURE: Mark S. Bicks

NAME: 28,770

REGISTRATION NUMBER

39252

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Patent
GERD ALTMEYER ET AL	:	
Serial No.:	:	
Filed: Herewith	:	
For: FILTER ELEMENT WITH PLASTIC FILTER CASING	:	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Preliminary to examination and calculation of the filing fee, please amend the above-identified application, as amended by Preliminary Examination, as follows:

In the Claims:

Claim 3 line 1 delete "or 2".

Claim 5, line 1 delete "or 4".

Claim 6, line 1, change "one of the Claims 1 to 5" to -- Claim 1--.

Claim 7, line 1, change "one of the Claims 1 to 6" to -- Claim 1--.

REMARKS

The above changes eliminate multiple dependency in the claims.

Respectfully submitted,

Mark S. Bicks
Reg. No. 28,770

Roylance, Abrams, Berdo & Goodman, L.L.P.
1225 Connecticut Avenue, N.W.
Washington, DC 20036
(202)659-9076

Dated: Dec 28, 1999

FILTER ELEMENT WITH PLASTIC FILTER CASING

The invention relates to a filter element comprising a supporting pipe which is surrounded by a mat filter, which in turn is enclosed in a filter casing with openings delimiting a filter chamber and wherein the filter element has two end caps arranged on the frontal surfaces.

Such filter elements (DE 4312705A1) are known in a plurality of embodiments and serve generally to free polluted fluids of pollutants, especially fluids in the form of hydraulic power oil, which are intercepted by the mat filter of the filter element and are retained and held out of the fluid current. When the mat filter is filled completely with pollutants, it is to be exchanged for a new mat filter or the complete filter element is to be replaced by an entirely new filter element. In this device, the polluted fluid passes through at least one of the two end caps through a corresponding inlet opening into the filter element and flows through this element for a purification process occurring from the outside inward, for which purpose the mat filter is arranged between the supporting pipe with openings and the filter casing likewise provided with openings. In order to attain a high pollutant intercepting capacity, the mat filter is pleated with a plurality of pleats, in other words is arranged in folds around the supporting pipe. The other end cap can be provided with a safety or bypass valve and can allow the fluid current to bypass the filter element insofar as the mat filter no longer allows fluid penetration because it is completely clogged with pollutants.

In this known filter element according to DE 4312705 A1, the cylindrical filter casing which surrounds the mat filter is formed of an expanded metal fabric, whereby the two ends of the

casing bent toward one another are bent inward to open in a retaining clip, which forms the foundation for a layer of adhesive, the adhesive in this case being a two-component adhesive. Because of the plurality of manufacturing stages and the accompanying structural components, the known filter element is costly to manufacture. Furthermore, there are maintenance problems with such filter elements when they become unusable, especially in relation to the aforementioned expanded metal casing of metal fabric. Then, final maintenance of the filter element, for example when the filter element is to be processed as an entirety in a suitable shredder unit, is consequently not possible and limits the recycling capacity to individual components of the filter element.

Starting from this state of the art the object of the invention is to disclose a filter element which can be manufactured more economically while also increasing the possibilities for recycling such a filter element as an entirety. Such an object is disclosed by a filter element having the features found in Claim 1.

Owing to the fact that according to the disclosure part of Claim 1 the filter casing consists of a plastic casing which is formed of a flat blank, of which the two ends which are bent toward one another with formation of the filter chamber can be tightly joined together by being sealed with a sealing seam produced by heat-sealing-, heating element- or ultrasonic-welding method, the longitudinal seam clasp for the formation of the sealing seam can be deleted and also the high-cost folding back of the ends of the filter casing need not be executed. Additional must not be expected until the two-component adhesive is hardened in the trough-like receiving channel formed by the longitudinal seam clasp. By using a plastic casing as filter casing, and by suitable selection of the plastic material, without further difficulty this arrangement can be heat-sealed

together or processed by an ultrasonic welding method, whereby high resistance and stability of the transverse sealing seam is also guaranteed during subsequent operation. Since it is still a question of plastic material being used as filter casing, this casing can later be disposed of and recycled with no problem; even if necessary together with the entire filter element by shredding or the like.

With one especially preferred embodiment of the filter element of the invention the mat filter is pleated and comprises plastic materials which, with formation of an additional filter fold and with flush alignment of the mat ends one against the other can allow these ends to be tightly joined together with one another by means of an ultrasonic welding method. Insofar as the ends of the filter casing are also connected with one another by means of an ultrasonic welding method, then a large part of the relevant sealing for the filter element can be manufactured using such a manufacturing method, which saves on manufacturing cost.

It has been shown to be particularly advantageous in the manufacture of the filter element to provide the mat filter in folds around the cylinder, which mat filter can be thrust open on the supporting pipe, provided with a larger exterior diameter than the interior diameter of the filter casing. Preferably then the mat filter is held together at one of its working ends in such a manner that a sort of cone-shape is developed, which simplifies its introduction into the cylindrical filter casing.

According to another especially preferred embodiment all of the structural parts of the filter element are of plastic materials, so that the filter element can be recycled as an entirety in a shredder unit.

Hereinafter the filter element of the invention is to be explained in greater detail relative to the drawing.

In the drawing :

Fig. 1 is a perspective view of the filter element;

Fig. 2 is a perspective representation of one manufacturing step relating to the pleated mat filter;

Figs. 3 and 4 show a segment relating to the sealing seam between the two ends of the filter casing, manufactured by the ultrasonic welding method or the heat-sealing method;

Fig. 5 is a sort of composite structural drawing of the components of the filter element in the form of the filter casing, the mat filter and the supporting pipe.

The filter element of Fig. 1 comprises a fluid-permeable supporting pipe 10 (cf. Fig. 5) which is surrounded by a mat filter 12, which in turn is enclosed by a filter casing 16 with openings 18 delimiting a filter chamber 14, and the filter element has end caps 20,22 (cf. Fig. 1).

Supporting pipe 10 is formed of a cylindrical pipe segment and has circular openings for passage of the fluid. The longitudinal ends of supporting pipe 10 are joined together by means of a welding seam, not shown in greater detail.

Supporting pipe 10 is open at the two frontal ends. Filter casing 16 consists of a plastic casing, especially of a polyamide or polyethylene compound, with good heat-adhesion properties and/or a good capacity for processing by ultrasonic welding. The plastic filter casing is first formed of a

not shown flat blank, and the two ends 24, 26, bent around toward one another, are joined together securely with one another by a sealing seam 28 produced by the aforementioned method, forming a filter chamber 14. Sealing seam 28 produced by the ultrasonic welding method is represented in Fig. 3, whereas the hot melt sealing seam 28 produced according to the heat-sealing method is the object of Fig. 4. According to the representations of both Figs. 3 and 4, an overlapping has been developed in the area of the two ends 24 and 26 of filter casing 16 in both cases. This is particularly important when the adhesive sealing (hot melt) which is produced for the heat-sealing method requires a more extensive contact surface to obtain a secure hold than does the sealing produced according to the ultrasonic welding method.

As is shown especially in Fig. 2, mat filter 12 is pleated, in other words is folded, and displays the traditional plastic materials in a supporting fabric not shown in greater detail, which are suitable for the filtering of a fluid and consequently for the cleaning out of pollutants. To produce a mat filter 12 with cylindrical interior diameter which delimits filter chamber 14, the two open ends 30 engage against one another intermittently, thus forming an additional filter fold 32. Subsequently the ends 30 are tightly joined together with one another by an ultrasonic welding method, whereby the bottom tool 34 is stationary and the top tool 36 undertakes the delivery movement of the device in the direction shown by the arrow. Following conclusion of the welding process the two ends 30 of mat filter 12 are joined together securely with one another with formation of an additional filter fold 32 and the strip-like individual filter folds 32 engaging on one another can be removed from one another and then form the hollow cylindrical filter chamber. In order to attain a construction of the filter element as shown in Fig. 6, first an assembly of the individual component parts according to the representation of Fig. 5 is undertaken. Thus first of all mat filter 12 which is folded on the cylinder and can be pushed open

on supporting pipe 10 can be provided with a larger exterior diameter than the interior diameter of the associated filter casing 16. Mat filter 12, as shown clearly in Fig. 5, is then brought inward at its top frontal end 38 in such a manner that a cone 40 is formed, which facilitates its introduction into cylindrical filter casing 16 and which is canceled out as soon as mat filter 12 is introduced entirely into closed filter casing 16.

In order to guarantee a complete recycle capacity of the filter element, it is provided that mat filter 12 and filter casing 16 are of a recyclable plastic material. Furthermore it can also be provided that the two end caps 20,22 are formed of a recyclable plastic material. Likewise, in expansion of this concept, supporting pipe 10 can also be of a recyclable plastic material. The openings 18 in plastic filter casing 16 are formed by punching out, and are in the shape of a circular cross section. The polluted fluid passes through the filter element from the exterior to the interior in filter chamber 14, whereby a cleaning out is performed with the fluid passage through pleated mat filter 12, which receives and holds the pollutants, whereinafter the cleaned out fluid flows through the outlet opening 42 of top end cap 20 in the direction as shown in Fig. 1. With reference to the bottom end cap 22 shown in Fig. 1 a not shown bypass or safety valve can be mounted facing downward in an offset projection. For the production of sealing seam 28 of filter casing 16 this casing is stretched out on a cylindrical auxiliary tool and then processed from the outside with the ultrasonic welding tool, thus producing sealing seam 28.

Mat filter 12 can be designed for low pressure or high pressure. In either case it can be of polyester or polyamide materials as well as fiberglass paper. Beyond that, mat filters which can be cleared of pollutants are of wire fabric materials. The perforated material for filter casing 16 can have a hole dimension of 1.25 mm with hole spacings in feed direction of 1.9 mm and

middle to middle spacing of 3.25 mm in horizontal alignment. Thus an open surface of 38% is obtained for the fluid flow-through.

Instead of the ultrasonic welding tool indicated with reference 36 in Fig. 2, one heating element can be used which causes welding of the plastic material for mat filter 12 and likewise can be used for the production of sealing seam 28.

The filter element described above can be produced economically because of its composition and is almost entirely recyclable. Of particular interest, insofar as the filter element is completely of plastic, it can be disposed of as an entirety in shredder units or the like.

Patent Claims

1. Filter element comprising fluid-permeable supporting pipe (10), which is surrounded by a mat filter (12), which in turn is enclosed by a filter casing (16) with openings (18) delimiting a filter chamber (14) and the filter element also has two end caps (20,22), characterized in that the filter casing (16) consists of a plastic casing which is formed from a flat blank, of which the two opposite ends (24,26) are bent toward one another and are joined together securely with one another with formation of the filter chamber (14) by means of a sealing seam (28) produced by heat-sealing, a heating element or an ultrasonic welding method.

2. Filter element as in Claim 1, characterized in that the mat filter (12) is pleated and is comprised of plastic materials which, with formation of an additional filter fold (32) and with flush arrangement of the mat filter ends (30) on one another, allow these elements to be tightly joined with one another by means of an ultrasonic welding method.

3. Filter element as in Claim 1 or 2, characterized in that the mat filter (12) folded around the cylinder, and which can be pushed open on the supporting pipe (10), has a larger exterior diameter than the interior diameter of the filter casing (16).

4. Filter element as in Claim 3, characterized in that the mat filter (12) is brought inward at one of its frontal ends (38) in such a manner that a cone (40) is formed, which facilitates its introduction into the cylindrical filter casing (16).

5. Filter element as in one of the Claims 1 to 4, characterized in that the mat filter (12) and the filter casing (16) consist of a recyclable plastic material.

6. Filter element as in Claim 5, characterized in that the two end caps (20,22) consist of a recyclable plastic material.

7. Filter element as in Claim 5 or 6, characterized in that the supporting pipe (10) consists of a recyclable plastic material.

8. Filter element as in one of the Claims 1 to 7, characterized in that the openings (18) in the plastic filter casing (16) are formed by punching out devices, especially by devices having circular cross section.

9. Filter element as in one of the Claims 1 to 8, characterized in that the sealing seam (28) are formed by the intermittent contact points of the ends (24,26) of the filter casing (16) or an overlapping area.

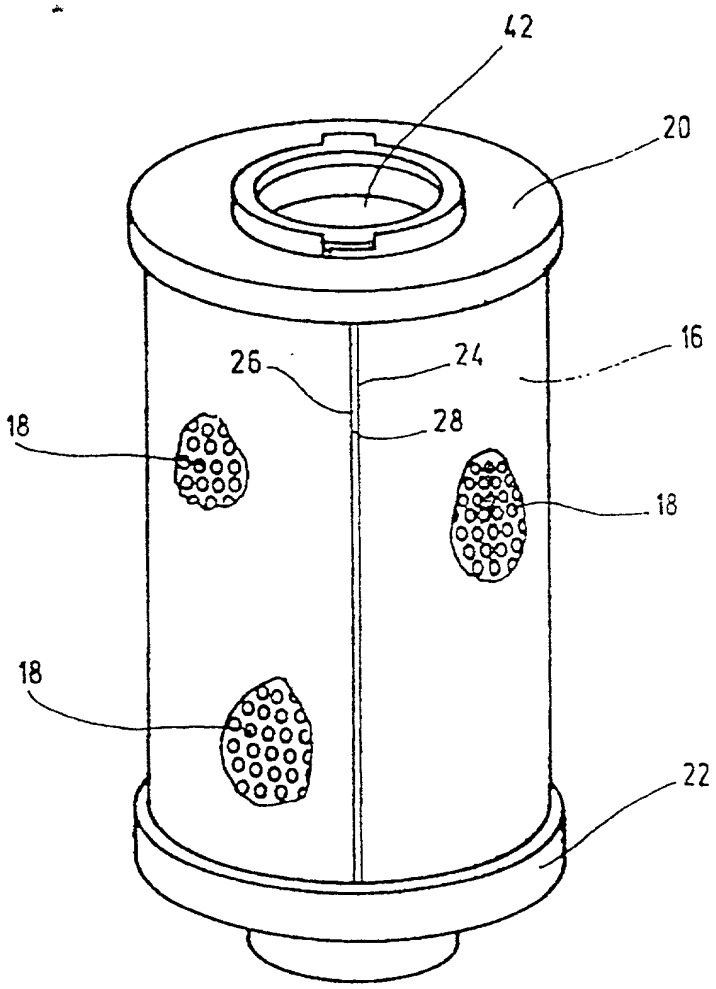

Fig.1

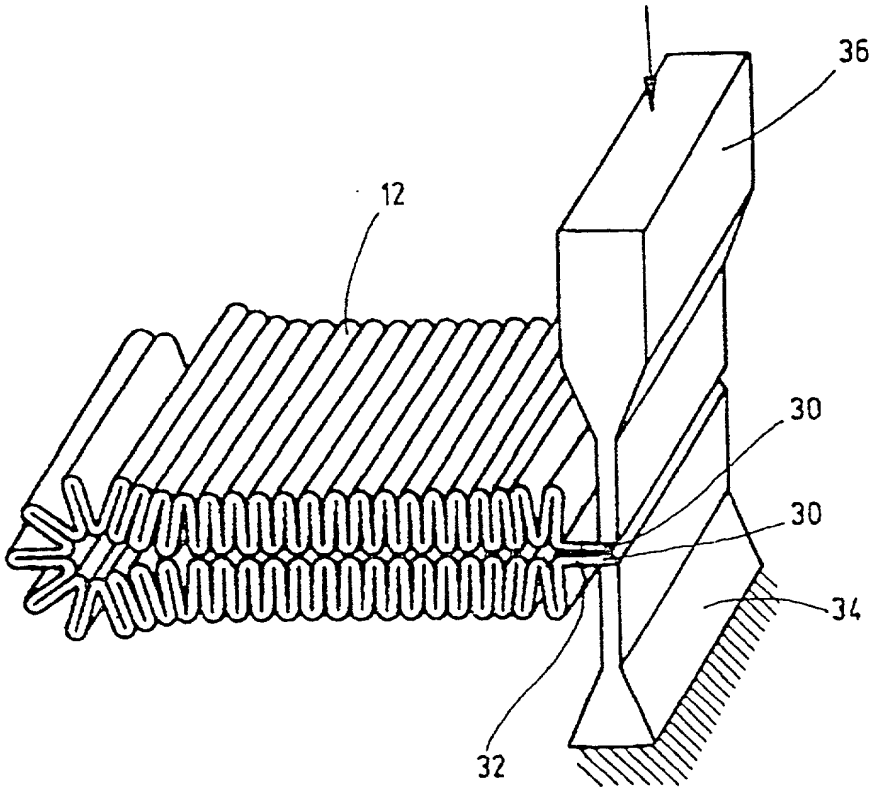

Fig. 2

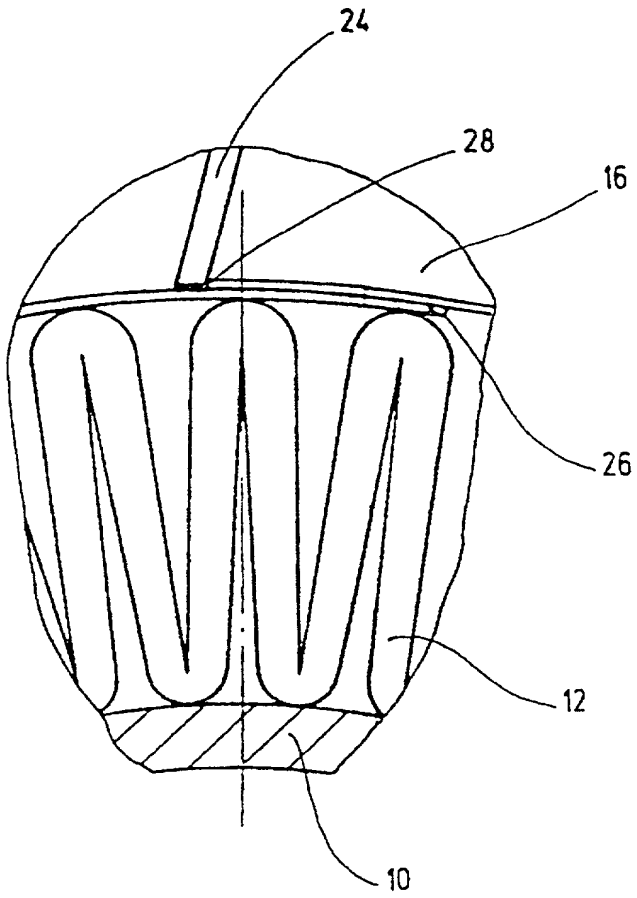

Fig. 3

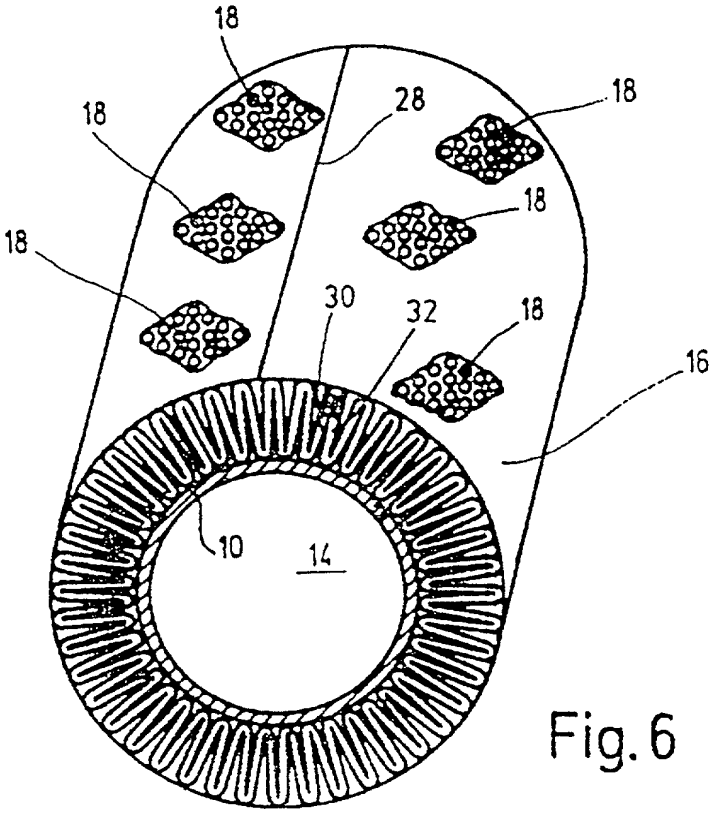

Fig. 6

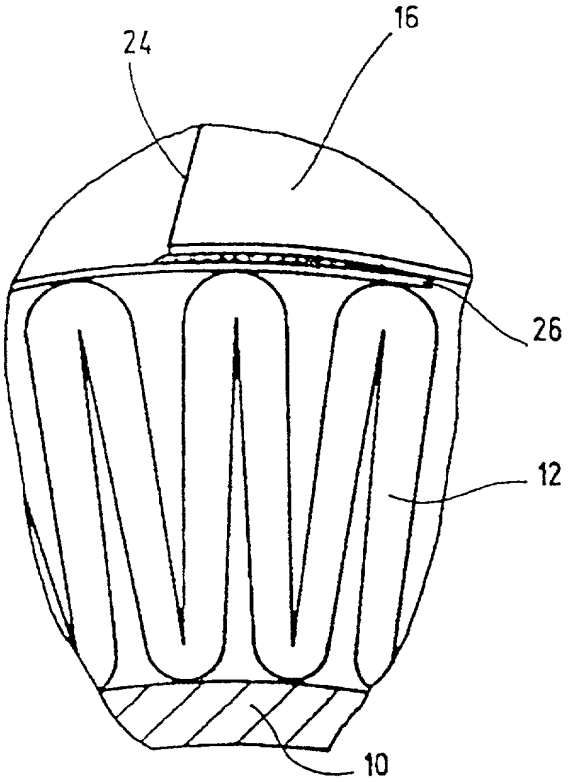

Fig. 4

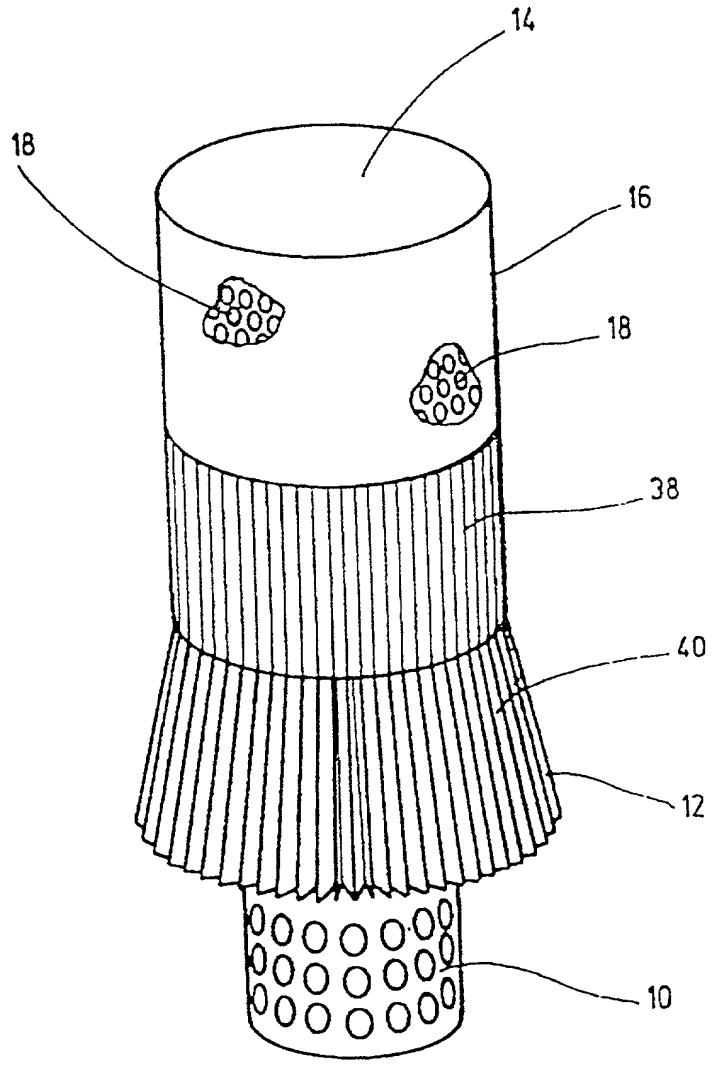

Fig. 5

PTO/SB/103 (8-96)
Approved for use through 9/30/98. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Declaration and Power of Attorney for Patent Application
Erklärung für Patentanmeldungen mit Vollmacht

German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

daß mein Wohnsitz, meine Postanschrift und meine Staatsangehörigkeit den im nachstehenden nach meinem Namen aufgeführten Angaben entsprechen, daß ich nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent für die Erfindung mit folgendem Titel beantragt wird:

_____

_____

deren Beschreibung hier beigefügt ist, es sei denn (in diesem Falle Zutreffendes bitte ankreuzen), diese Erfindung

☐ wurde angemeldet am _____
unter der US-Anmeldenummer oder unter der Internationalen Anmeldenummer im Rahmen des Vertrags über die Zusammenarbeit auf dem Gebiet des Patentwesens (PCT)
_____ und am
_____ abgeändert (falls zutreffend).

Ich bestätige hiermit, daß ich den Inhalt der oben angegebenen Patentanmeldung, einschließlich der Ansprüche, die eventuell durch einen oben erwähnten Zusatzantrag abgeändert wurde, durchgesehen und verstanden habe.

Ich erkenne meine Pflicht zur Offenbarung jeglicher Informationen an, die zur Prüfung der Patentfähigkeit in Einklang mit Titel 37, Code of Federal Regulations, § 1.56 von Belang sind.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

FILTER ELEMENT WITH PLASTIC
FILTER CASING

the specification of which is attached hereto unless the following box is checked:

☑ was filed on 25 August 1997
as United States Application Number or PCT International Application Number PCT/EP97/04630 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

German Language Declaration

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäß Title 35, US-Code, § 119 (a)-(d), bzw. § 365(b) aller unten aufgeführten Auslandsanmeldungen für Patente oder Erfinderurkunden, oder § 365(a) aller PCT internationalen Anmeldungen, welche wenigstens ein Land ausser den Vereinigten Staaten von Amerika benennen, und habe nachstehend durch ankreuzen sämtliche Auslands- anmeldungen für Patente bzw. Erfinderurkunden oder PCT internationale Anmeldungen angegeben, deren Anmeldetag dem der Anmeldung, für welche Priorität beansprucht wird, vorangeht.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Applications
(Frühere ausländische Anmeldungen)

Priority Not Claimed
Priorität nicht beansprucht

(Number) (Nummer)	(Country) (Land)	(Day/Month/Year Filed) (Tag/Monat/Jahr der Anmeldung)	☐
(Number) (Nummer)	(Country) (Land)	(Day/Month/Year Filed) (Tag/Monat/Jahr der Anmeldung)	☐

Ich beanspruche hiermit Prioritätsvorteile unter Title 35, US-Code, § 119(e) aller US-Hilfsanmeldungen wie unten aufgezählt.

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s)listed below.

(Application No.) (Aktenzeichen)	(Filing Date) (Anmeldetag)

Ich beanspruche hiermit die mir unter Title 35, US-Code, § 120 zustehenden Vorteile aller unten aufgeführten US-Patentanmeldungen bzw. § 365(c) aller PCT internationalen Anmeldungen, welche die Vereinigten Staaten von Amerika benennen, und erkenne, insofern der Gegenstand eines jeden früheren Anspruchs dieser Patentanmeldung nicht in einer US-Patentanmeldung, bzw. PCT internationalen Anmeldung in in einer gemäß dem ersten Absatz von Title 35, US-Code, § 112 vorgeschriebenen Art und Weise offenbart wurde, meine Pflicht zur Offenbarung jeglicher Informationen an, die zur Prüfung der Patentfähigkeit in Einklang mit Title 37, Code of Federal Regulations, § 1.56 von Belang sind und die im Zeitraum zwischen dem Anmeldetag der früheren Patentanmeldung und dem nationalen oder im Rahmen des Vertrags über die Zusammenarbeit auf dem Gebiet des Patentwesen (PCT) gültigen internationalen Anmeldetags bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Application No.) (Aktenzeichen)	(Filing Date) (Anmeldetag)	(Status) (patented, pending, abandoned) (Status) (patentiert, schwebend, aufgegeben)
(Application No.) (Aktenzeichen)	(Filing Date) (Anmeldetag)	(Status) (patented, pending, abandoned) (Status) (patentiert, schwebend, aufgegeben)

Ich erkläre hiermit, daß alle in der vorliegenden Erklärung von mir gemachten Angaben nach bestem Wissen und Gewissen der Wahrheit entsprechen, und ferner daß ich diese eidesstattliche Erklärung in Kenntnis dessen ablege, daß wissentlich und vorsätzlich falsche Angaben oder dergleichen gemäß § 1001, Title 18 des US-Code strafbar sind und mit Geldstrafe und/oder Gefängnis bestraft werden können und daß derartige wissentlich und vorsätzlich falsche Angaben die Rechtswirksamkeit der vorliegenden Patentanmeldung oder eines aufgrund deren erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

PTO/SB/103 (8-96)
Approved for use through 9/30/98. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

German Language Declaration

VERTRETUNGSVOLMACHT: Als benannter Erfinder beauftrage ich hiermit den (die) nachstehend aufgeführten Patentanwalt (Patentanwälte) und/oder Vertreter mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Angelegenheiten vor dem US-Patent- und Markenamt: *(Name(n) und Registrationsnummer(n) auflisten)*

David S. Abrams Reg. No. 22,576

Postanschrift:

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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*

Robert H. Berdo Reg. No. 19,415
Alfred N. Goodman Reg. No. 26,458
Mark S. Bicks Reg. No. 28,770
John E. Holmes Reg. No. 29,392
Garrett V. Davis Reg. No. 32,023

Send Correspondence to:
Roylance, Abrams, Berdo & Goodman, L.L.P.
1225 Connecticut Ave, N.W. Wash. D.C. 20036

Direct Telephone Calls to: *(name and telephone number)*
Mark S. Bicks (202) 659-9076

Vor- und Zuname des einzigen oder ersten Erfinders 1-00	Full name of sole or first inventor Gerd Altmeyer
Unterschrift des Erfinders Datum	Inventor's signature Altmeyer Date 12/10/98
Wohnsitz	Residence St. Ingbert, Germany DEX
Staatsangehörigkeit	Citizenship German
Postanschrift	Post Office Address Am Oschweg 2,
	D-66386 St. Ingbert, Germany
Vor- und Zuname des zweiten Miterfinders (falls zutreffend)	Full name of second joint inventor, if any Harald Mees
Unterschrift des zweiten Erfinders Datum 2-00	Second Inventor's signature Date 12/10/98
Wohnsitz	Residence Lebach, Germany DEX
Staatsangehörigkeit	Citizenship German
Postanschrift	Post Office Address Falscheider Strasse 52
	D-66822 Lebach, Germany

(Im Falle dritter und weiterer Miterfinder sind die entsprechenden Informationen und Unterschriften hinzuzufügen.)

(Supply similar information and signature for third and subsequent joint inventors.)

Please type a plus sign (+) inside this box → ☐

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DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet
Page ___ of ___

Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor					
Given Name (first and middle [if any])		Family Name or Surname				
Herbert		Mohr				
Inventor's Signature	Herbert Mohr				**Date**	12/10/99
Residence: City	Merchweiler	**State**		**Country**	DEX Germany	**Citizenship** German
Post Office Address	Ludwigstrrsse 6a,					
Post Office Address	D-66589 Merchweiler, Germany					
City		**State**		**ZIP**		**Country**

Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor					
Given Name (first and middle [if any])		Family Name or Surname				
Ute		~~Zenner~~ Lehmann				
Inventor's Signature	Ute Lehmann				**Date**	12/10/99
Residence: City	St. Ingbert	**State**		**Country**	Germany DEX	**Citizenship** German
Post Office Address	Reinhold-Zeller-Strasse 36					
Post Office Address	D-66386 St. Ingbert, Germany					
City		**State**		**ZIP**		**Country**

Name of Additional Joint Inventor, if any:	☐ A petition has been filed for this unsigned inventor					
Given Name (first and middle [if any])		Family Name or Surname				
Inventor's Signature					**Date**	
Residence: City		**State**		**Country**		**Citizenship**
Post Office Address						
Post Office Address						
City		**State**		**ZIP**		**Country**

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